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DOCUMENTATION FOR "WHAT NOW, CAPTAIN?": A TRAINING CONCEPT FOR EXPORTING LESSONS LEARNED FROM THE NATIONAL TRAINING CENTER

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The National Training Center (NTC) provides a realistic training environment for battalion training forces. Part of NTC's training concept is the collection and use of a wide range of training information: audio, video and digital. These provide an unparalleled opportunity to examine and send back to the units, and to the larger Army community, performance information. At present, effective and comprehensive utilization of this information has not been made.

To remedy the shortfall in utilization, the Army Research Institute (OVER)

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20. Abstract (continued)

(ARI) has contracted with The BDM Corporation to perform a three-year study on the design and development of an NTC Home Station feedback system. One of the results of the first year of this effort was the development of the "What Now, Captain?" training concept.

This involves the utilization of all NTC data sources (audio, video, and digital) to prepare short video vignettes based on real NTC missions. The design of these vignettes will stress certain tactical mission fundamentals; the intent is to use the vignettes as part of the tactical instruction provided to the officers within a battalion.

ARI RN 87-13 provides a detailed summary of this training concept, and of its proposed products.

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DOCUMENTATION FOR "WHAT NOW, CAPTAIN?": A TRAINING CONCEPT FOR EXPORTING LESSONS LEARNED FROM THE NATIONAL TRAINING CENTER

CONTENTS

INTRODUCTION

The training mission of the National Training Center (NTC) is to provide the U.S. Army Forces Command heavy battalions with tough, realistic, and challenging combined arms training. It is clear that this mission will be further expanded with the appearance of armored cavalry and light infantry on the NTC battlefield. Air mobile infantry and cavalry squadrons are presently scheduled to participate. Heavy/light mixed forces are being planned to participate in training in the near future. The NTC is ideally suited to provide combat readiness training as close to combat as safety and resource constraints permit. Unique to the NTC is a one-of-a-kind training instrumentation system, an opposing force threat of regimental size, and a group of dedicated trainers and controllers. All of these combine to present the U.S. Army with an unparalleled opportunity for training, training feedback, and training research.

THE NATIONAL TRAINING CENTER

The NTC Operations Group is charged with the development and conduct of the NTC training opportunity.

The Operations Group is organized with subelements that design unit-specific battle scenarios, control and orchestrate the conduct of the battle, operate the NTC instrumentation system, and assess the performance of the units.

The NTC is a one-of-a-kind training and evaluation system found nowhere else in the world. The system is designed to provide both subjective and objective observations, a degree of insight into unit performance never available previously in the history of military training. The system uses sensors, computers, and data communications to tie together the whole NTC training activity and to capture that activity in a manner that permits effective training feedback and assessment. Training Analysis and Feedback personnel of the Operations Group are responsible for operating the instrumentation system and collectively formulating unit performance with the observations of field observers.

The Operations Group employs teams of field observers and trainers that accompany the training units during the 14 days of field training. The observer teams are organized to mirror the unit chain of command. These observer teams assess the performance of the task force against the standards established by TRADOC.

Field observers perform other major functions in addition to the assessment of unit performance. U.S. Army Forces Command Circular 350-82-10 charges the Operations Group to coach and teach the units as an inherent part of the NTC experience. Where it is clear that the level of understanding of doctrine, tactics, fundamentals, and procedures is weak within a unit, Operations

group trainers coach and teach to raise unit understanding and technical proficiency.

The most important function within the NTC, and the key training role of the Operations Group trainers, is to present After Action Reviews (AAR). These AARs are conducted after force-on-force and live-fire training events. A platoon, company, and task force AAR is conducted after each battle to provide feedback to the unit to increase the level of individual and collective proficiency daily throughout the NTC training period. The AAR is the heart of the learning process.

RESEARCH BASED UPON NTC DATA

Introduction

The NTC's training support components are in place and multi-echelon combined arms training and evaluation exercises are being conducted and recorded on a routine basis. Increasing emphasis is being placed on the most effective integration of NTC and home station training, as well as on the NTC's potential for addressing questions concerning training techniques, equipment, organization, and doctrine. This potential should be fully exploited as it provides the best source of task force training data. When fully developed, a methodology for using information from both NTC and home station to provide Army-wide feedback will be an essential complement to the Army's exploitation of high technology training.

Types of NTC Feedback

The Unit Take Home Package. Feedback from the NTC experience has taken many forms up to this point. After every rotation the Control Brigade and the participating battalions receive a Take Home Package (THP). The THP consists of:

(1) A final AAR assessment debriefing;
(2) Performance trends identified within each of the task force's seven operating systems;
(3) Force casualty and destruction ratios for each major tactical event;
(4) A list of recommended areas requiring training reinforcement;
(5) Selected audio and visual tapes to be used in post-NTC retraining

This training package, plus the experience and lessons learned by the unit (brigade and battalion) chain of command form the basis for more intensive, realistic, and better managed home station training. Portions of the Take Home Packages are disseminated by the Combined Arms Center (CAC) to Service School proponents for the purposes of analysis and improved training products.

Recorded Data. In addition to the collection efforts directed at building and presenting a paper-based training

performance assessment to tactical units, digital and communications data are recorded and stored for future use at the NTC. Digital history tapes are transported to ARI-Monterey and are in-processed and readied for research. Forty channel communications tapes from each rotation are collected and placed in storage. To date no attempt has been made to use communications data in research programs.

The Research Problem Associated with Prototype Training Products

The research problem is clear: To increase the degree of training feedback based upon NTC data. The finest combat training, supported by extensive simulation techniques, is being conducted at Fort Irwin. The NTC instrumentation system, which is a revolutionary training concept of great power, has been accepted from the contractor by the Army. More than 60 armored and mechanized battalions have fought on the NTC battlefield. Yet with all of the resources which are and have been expended to train the Army to a higher degree of readiness, relatively little high-quality training feedback has been obtained from the NTC experience.

As a partial solution to this problem, The BDM Corporation is supporting the Army Research Institute (ARI), Presidio of Monterey, in a 15 task, 36 month research effort using all types of data generated at the National Training Center, Fort Irwin, California. The contract is entitled "Research Support for a Unit Home Station Training and Feedback System." Results for this contract will include products based upon NTC information providing new and better feedback to the training units and the Army as a whole. In the first year of the contract, twenty-two identifiable products or reports were produced. One of these was a training concept entitled "What Now, Captain?"

"What Now, Captain?"*

"What Now, Captain?" is a training concept for exporting the various forms of NTC data directly to the FORSCOM units and TRADOC classrooms. The concept entails the combining of NTC audio, video, and digital information into short training vignettes. The vignettes would be directed at teaching young officers tactical fundamentals based on the real experiences of the NTC. The title of the concept reflects the intended interactive nature of the vignettes maximizing the instructional benefit of the presentation.

The remainder of this report presents the concept briefing and associated slides prepared for a presentation to CATA by ARI/BDM. The slides provide the necessary details to fully understand the training concept.

* This training concept was initially proposed by William Shackelford, former Commander of the Operations Group at the NTC.

CONCEPT BRIEFING FOR "WHAT NOW, CAPTAIN?"

Slide 1 - What Now, Captain?

This briefing illustrates how real NTC experiences can be exported to the field and integrated into classroom instruction at Army Service Schools. The concept was developed by The BDM Corporation and the Presidio of Monterey Field Unit of the Army Research Institute to provide a practical means for exporting lessons learned at the National Training Center and to address training defeciences that have been identified at the NTC.

Slide 2 - Added Dimensions

This concept supplements the current issue-the-tissue approach by presenting battle play as it actually occured during training rotations at the NTC. The training developer can select from the computer graphics, AAR video segments, summary statistical data and radio communications tapes that are available to add dimensions of realism, detail and real-world execution that is not now available in the classroom. Students can study mission requirements, plans and orders and then watch a battle unfold as it was fought. The instructor can stop the battle play at will to discuss and emphasize teaching points.

This direct, visible and immediate link between the planning and execution phases of tactical operations should add interest and increase understanding. By carefully selecting and integrating NTC materials, the training developer can produce battle segments:

That enliven classroom exercises,
That can be viewed from a number of perspectives, and
That can focus on many subjects appropriate to fighting at platoon-level through battalion-task-force level,

. . . and real data can be used to summarize battle results.

Slide 3 - The Payoff

The most obvious results from such an approach would be:

- o The exploitation of what we are learning at the NTC in a manner that allows wide distribution throughout the Army;
- o Added realism in the classroom;
- o Increased student interest and understanding;
- o And, most importantly, assurance that lessons will be built to address training deficiencies that have been identified at the NTC.

Slide 4 - A Caveat

We want to emphasise at this point what the taped sequences which follow are meant to illustrate a concept of how NTC experiences can be used in the Service School classroom. We have purposely avoided any effort to create a prototype lesson on some aspect of doctrine or tactics. Thus, the scenes you are about to see represent the general type and manner in which materials in the NTC history files can be used in the classroom. Of course, all such materials would be edited, or sanitized, to assure that the units and players involved are not identified.

Slide 5 - Discussion Supported By Graphics

The NTC computer tapes and the DeAnza tablet provide a variety of source material and user options for the training developer. Any, or all, of these can be used selectively by the developer to enable the instructor to focus lesson material and class discussion on the training objectives. What follows now is a demonstration of some of the computer and DeAnza Tablet options. What you will see are images as they might appear on a large screen in the classroom. You will notice some distortion in the graphic display of the digitized terrain map and player symbology. This occurs because the video tape and your monitor cannot capture the detail and resolution available on the computer lines from which this video tape was produced. This problem can be corrected with equipment that was not available when this demo tape was produced.

Slide 6 - The Setting.

You are about to see a video-taped segment of a simulated classroom exercise where segments of an NTC battle are used to supplement the basic instructional approach. The class of IOAC students plays the role of task force S-3 in a Defend in Sector mission. For homework, each student studied the usual hand-out materials and prepared a plan and Operations Order. The instructor and students have just finished discussing homework solutions presented by two students. The classroom scene begins as the instructor introduces a defend in sector mission as it was conducted by an armor task force at the NTC. You will hear the instructor's voice only; you will not see him. We go now to the classroom.

Classroom 1, DeAnza/Terrain and situation.
(CCM, 1:100,000, map centered in AO, no graphics)

Instructor: Okay, now let's take a look at how this mission was actually conducted by an Armor task force at the National Training Center. First, I'll take you on a

quick terrain walk of the area of operations. The assigned sector runs from an area just forward of this hill mass in the east, back west and south to the hills that run the width of the sector in this area. The northern boundary runs along this range in the north and the southern boundary runs generally along this range in the south.

(Display Grids)

The sector is about 26 kilometers deep and 7 kilometers wide.

(Grids off, display Relief w/ Contours)

Here is a display of the area with Relief and Contours overlayed. The major terrain features are these hills in the forward edge of the sector, the large range in the north center of sector, the smaller ridge in the south center, and the range that crosses the sector in the rear.

(Contours off, display BLUFOR w/ BN control measures)

Now let's look at how this task force commander planned the mission. Here is his initial disposition of forces and maneuver graphics.

Phase line star is here, forward of the FEBA. The scouts are screening at this location along phase line tropic which is the FEBA. Company A is defending forward with two platoons here along phase line dust. Teams Bravo and Charlie are defending here just forward of the task force rear boundary on this terrain feature.

(Display rest of maneuver graphics)

Here are the rest of the maneuver graphics.

(Shift to 1:50,000, move map to show forward BLUFOR and enemy dispositions, add OPFOR palyers only)

Its now 0530, elements of a motorized rifle regement are three to five kilometers forward of the FEBA and

they have begun their attack. The scouts and A Company are taking artillery fires and two OPFOR battalions are advancing toward the FEBA. One battalion is moving along the road toward the southern edge of the sector and another battalion is coming through the hills in the center of the sector. Both are about two to two and a half kilometers from the scouts.

Lets watch the action now as the battle plays at a fast speed.

Its now 0558 and you can see that the main forces of the regiment are bypassing the scouts and are approaching the two forward platoons of A Company. so far the BLUFOR has only fired two or three mortar barrages.

Lets stop the action at this point and see if there is an S-3 here who has a recommendation for the task force commander. Captain Charger, what should the BLUFOR commander be considering now?

Slide 7 - Discussion Options

At this point, the instructor stops the play of the battle and leads students in a discussion of the events they have observed. The instructor and students may focus on key events that emphasize teaching points, identify tactical errors, critique the commander's actions and select appropriate courses of action.

We return now to the instructor in the classroom.

Classroom 2, DeAnza/2d battle segment
(1:50,000 SW/ Relief & Grids, map center 4099, time is 0651)

Instructor: Its now 0651 and the battle is on again. the two lead platoons of A Company have been over-run, and the MRR is attacking the remainder of A Company. lets watch the action. The MRR continues to attack along two axis. You can see the BLUFOR artillery going in there on one of the OPFOR battalions. BLUFOR is also putting mortar fires to the rear of that same battalion.

So, by 0715 hours, company A has been destroyed and the MRR is pushing toward the main body of the task force. We'll stop here again to see what you S-3s are going to do now. Captain Wisdom, give us your analysis of what has just occured and your ideas on what the task force commander should do now.

Slide 8 - Instructor Options

The instructor may continue this sequence of activities until the battle is over. He may chose any segment the lesson developer has included in the video tape for replay and stop action. He would summarize at the end of the lesson and could use portions of the AAR video tapes and extracts from the statistical summaries contained in the history files.

What follows now are segments of AAR video of the type that could be used to show enemy forces advancing rapidly on the friendly forces, provide examples of limited visibility on the battlefield or to summarize significant events during the battle.

(Show selected video segments)

- Here the OPFOR is breaching a barrier without any BLUFOR Resistance,
- Here are shots that provide examples of visability on the battlefield,
- And here is a segment from an actual After Action Review.

Slide 9 - This Illustration

You have just seen an illustration of how NTC exercises and data can be used in the design and presentation of instruction. This concept uses existing technology and equipment that is now in the service schools and in most units to export experiencies and lessons from the NTC to the Army in the field. This approach can be used to teach many of the subjects related to operations at battalion, company, and platoon level.

Battle tapes, such as the one you have just seen can be played using the standard VCR tape player that is available throughout the Army system. A large screen projector with remote control device would provide best results in the classroom.

The classroom instructor's options will be limited by the amount and type of NTC materials that the lesson developer pre-records on the video tape.

Slide 10 - Future Applications

* INTERACTIVE SYSTEM
    - MICRO COMPUTER BASED
    - LARGE STORAGE
    - BRANCHING CAPABILITY
* LARGE SCREEN PRESENTATION
    - INSTRUCTOR CONTROLLED
* SIMULATION COMPATABLE
    - JANUS, ET AL
* STUDENT DISPLAYS

A logical extension of this instructional approach would be the design and installation of a fully interactive system that allows the instructor to use virtually everything within the NTC data files. With current-day technology and available hardware, it is possible to develop a compact, interactive, instructional system, using a micro computer, large memory capacity and branching capabality. The system would give the instructor the ability to branch to any portion of a recorded battle segment, project the digitized replay on a large screen and integrate relevant video and radio communications at will. This basic interactive system could also be made compatable with existing and planned simulations and may even accomodate the playing of student solutions on a large screen in the classroom.

This completes our briefing.

BRIEFING SLIDES FOR "WHAT NOW, CAPTAIN?"

This product was produced by BDM Corporation in conjunction with a contract effort supporting ARI, POM

Views are those of the authors and do not represent an official Department of the Army position.

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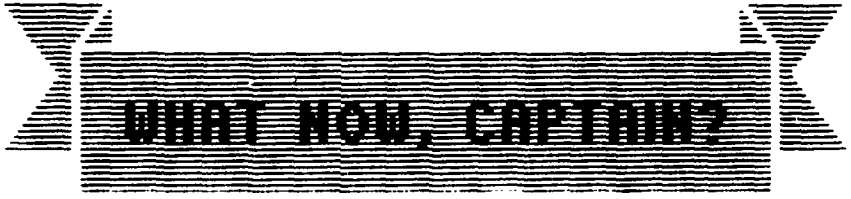

- 0 Conceptual Illustration
- o Developed by BDM/ARI, POM
- o Adds Dimensions to Class Instruction
- o Brings the Field into Classroom
- o Uses NTC Battles to Teach

ADDED DIMENSIONS

- Students Watch Battle Unfold
- Direct Link Between Plans & Execution
- Battles Come Alive
- Increased Interest & Understanding

THE PAYOFF:

Exploit NTC Lessons Learned

=

Added Realism

Student Interest & Understanding

Improved Combat Performance

A CAVEAT

Illustrates A Concept Only

Not A Prototype Lesson

NTC Materials Sanitized

Discussions Supported By Graphics

- 4 Scales w/ Zoom
- Force Dispositions
- Contours
- Roads/Railroads
- Grids
- Planned Fires
- Hydrography
- Relief
- Movement
- Fires/Hits/Kills

THE SETTING

IOAC Classroom

Defend In Sector Mission

Students As S-3s

Prepared BN OPORD At Home

Class Discussed Selected Orders

DISCUSSION OPTIONS

Teaching Points

Key Events

Discrepancies/Errors Observed

Critique Of C2 Actions

Courses Of Action

INSTRUCTOR OPTIONS

- ✓ Play Selected Battle Segments
- ✓ Stop Action
- ✓ Discuss As Appropriate
- ✓ Summarize Teaching Points

This Illustration:

USES NTC EXERCISES & EXISTING TECHNOLOGY:

- EXPORT LESSONS LEARNED
- ADD BATTLE REALISM
- INCREASE INTEREST & MOTIVATION
- ADD TRAINING OPTIONS

Future Applications

** Interactive System
- Micro Computer Based
- Large Storage
- Branching Capability
- Voice and Video

** Large Screen Presentation
- Instructor Controlled

** Simulation Compatible
- Janus, ET AL

** Student Displays

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